L 02460-67 EWT(1)/EWT(m) GW	
ACC NR: AT6028957 (N) SOURCE CODE: UR/256	6/66/082/000/0032/0034
AUTHOR: Patin, S. A.; Aleksandrov, A. V.; Orlov, V. M.	
ORG: none	42 B+/
TITLE: Strontium-90 on the Atlantic Ocean surface in the se	8+1
SOURCE: AN SSSR. Institut okeanologii. Trudy, v. 82, 1966 radioaktivnoy zaryaznennosti vod mirovogo okeana (Investig contamination of waters of the oceans), 32-34  RADIO/SOTOPE, TOPIC TAGS: A nuclear radiation, strontium E, ocean radioact fallout, radioactivity / ATLANTIC OCEAN	. Issledovaniya ations of radioactive
ABSTRACT: The article deals with the results of determination in the surface waters of the Atlantic Ocean during the 11th comparison of the Mikhail Lomonosov. It was found that the concentration of the serious the same as observed in previous years. No sign concentration in the surface layer of ocean, related to late either hemisphere. Orig. art. has: 1 figure and 1 table.	ruise of the R/V Sr <sup>90</sup> in September—Novem—
SUB CODE: 18, 08/ SUBM DATE: none/ ORIG REF: 005/	
Card 1/1 L	

ALEKSANDROV, A.V., inzh.

Propeller characteristics of hydrofoil bosts. Trudy LIVT no.72:53-57 '64. (MIRA 18:10)

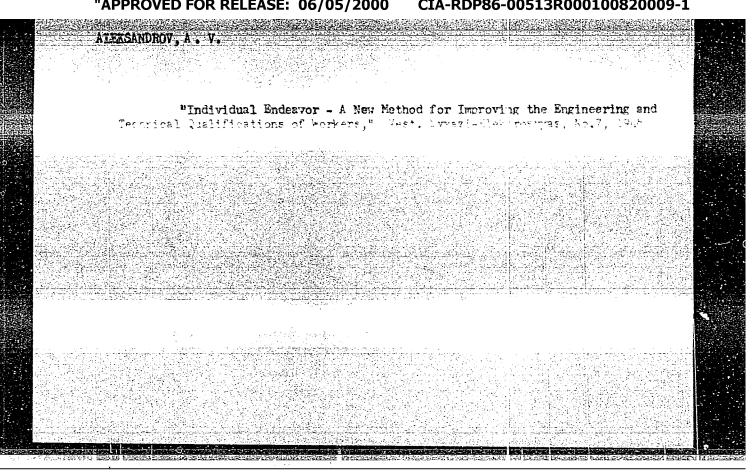
ALEKSANDROV, A.V.

Calculating nonsteady regimes of the simultaneous performance of a compressor station and gas pipeline sections adjacent to it. Gaz. delo no.7:19-23 165. (MIRA 18:9)

l. Gosudarstvennyy proizvodstvennyy komitet po gazovoy promyshlennosti  ${\tt SSSR}_{\bullet}$ 

ALEKSANDROV, A.V., kend.tekhn.nauk, dotsent (Moskva)

Calculating box-shaped beam spans by a transposition method. Issl. po teor. scoruzh. no.14:209-213 '65. (MIRA 18:10)



"Use of Gas-Pressure Drops in Turbines, Gas "Use of Gas-Pressure Drops in Turboelectric Generators," A. V. Aleksandrov "Energet Byul" No 6, pp 16-24  Use by turboelectric generators of pressure drops of matural gas during its extraction and pipeline flow to obtain electric power was first suggested by Fron M. D. Millionshchikov and Engineers P. A. Stron, A. A. Degterev, and G. M. Ryabinkov in 1948. Aleksandrov lays down theoretical principles used in calculating power of gas turbine and describes experiments on Gronstant-pressure and describes experiments on Gronstant-pressure cludes turboelectric generators can use gas pressure drops to produce electric power and at same act as substitute for usual gas-pressure regulators in gas mains, lature in gas mains, and act as mains and as mains.	ALEKSANDROV, A. V.		PA 164T9	
	<b>164179</b>	### As natural-gas pressure regulator in gas describes experiments on GT constant-presturbine used in contemporary aviation. Constant-presturboelectric generators can use gas-part to produce electric power and at a act as substitute for usual gas-pressurers in gas mains.	"Use of Gas-Pressure Drops in Turboelectric erators," A. V. Aleksandrov  "Energet Byul" No 6, pp 18-24  Use by turboelectric generators of pressure of matural gas during its extraction and pi flow to obtain electric power was first sug by Prof M. D. Millionshchikov and Engineers Stron, A. A. Degterev, and G. M. Ryabinkov 1948. Aleksandrov lays down theoretical pr ples used in calculating power of gas turbi	

ALEKSANDROV, A. V.

ALEKSANDROV, A. V.: "Investigation of the stability of skeleton systems using the power-engineering method". Moscow, 1955. Min Railways USSR. Moscow Order of Lenin and Order of Labor Red Banner Inst of Railroad Engineers imeni I. V. Stalin, Chair of "Structural Mechanics". (Dissertations for the degree of Candidate of Technical Sciences.)

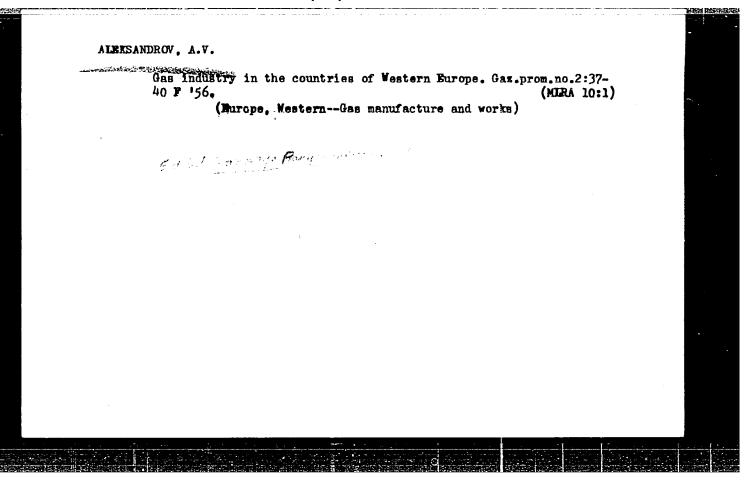
SO: Knizhnaya Letopis' No. 50 10 December 1955. Moscow.

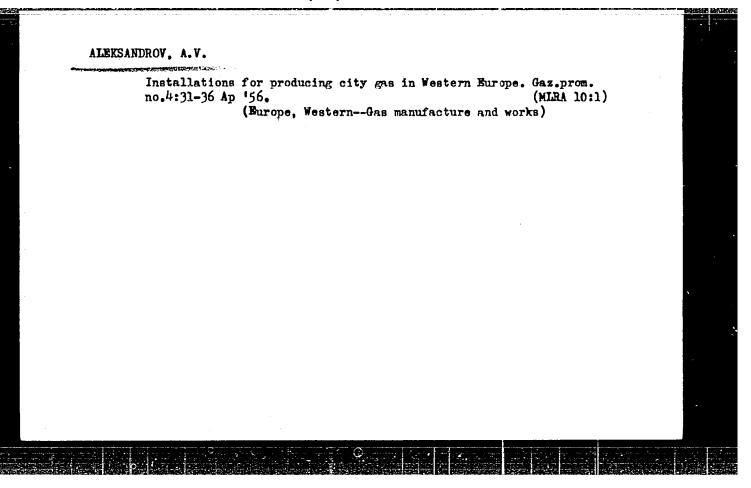
ALEKSANDROV, A.

"To Boost the Rate of the Gas Industry Development," Pravda, No.189,
8 July 1955.

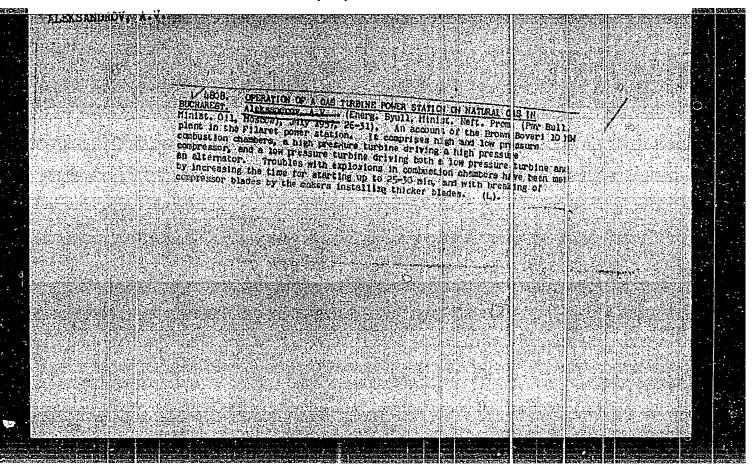
Chief Engineer, Glavneftegas

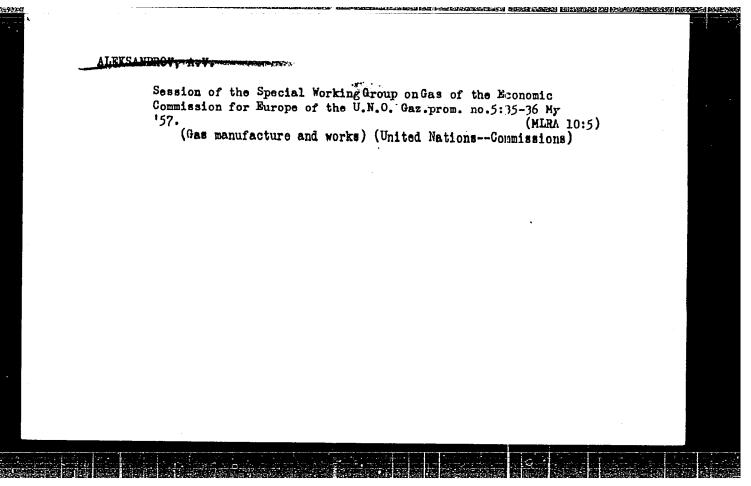
Summary D 332103, 18 Oct 55



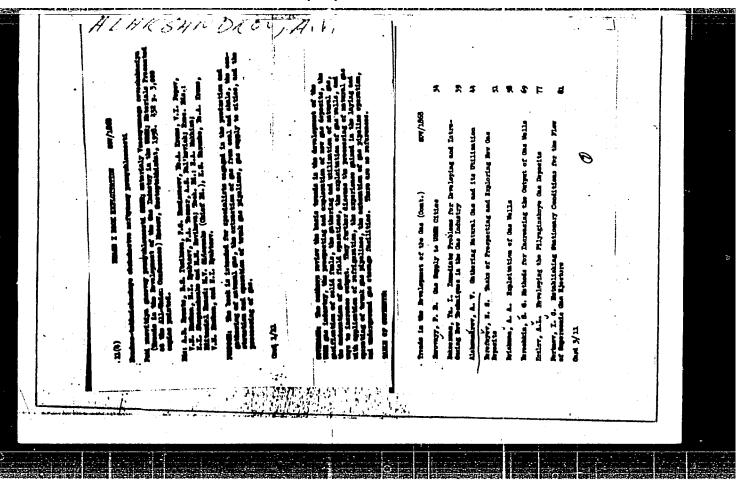


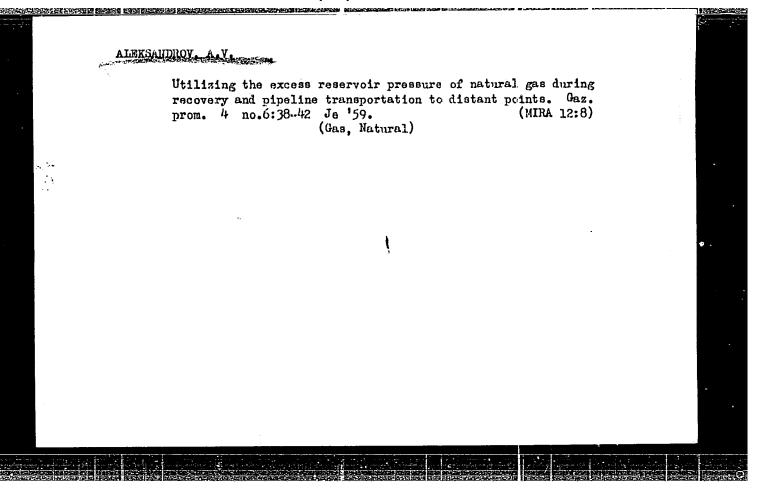
"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820009-1





"APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820009-1





"Calculation of Pipelines and the Prerequisites for Choosing Optimum Gas Transmission Conditions."

report presented at the Eighth International Gas conference at Stockholm, 28 30 Jun 61

ALEKSANDROV, A.V.: BARABASH, B.V.: KHODANOVICH, I.Ye.

Calculation of gas pipelines and the premises for selecting optimum conditions for gas pipelining. Gaz. prom. 6 no.6:17-23 '61.

(Gas, Natural--Pipelines)

SIDORENKO, M. V.; ALEKSANDROV, A. V.; KHALATIN, N. I.

"Operation of the largest system of gas supply and its work during peak load periods (on the example of Moscow system of gas mains)."

Report to be submitted at the 9th Intl. Gas Conference, Hague, 1-4 Sept 1964.

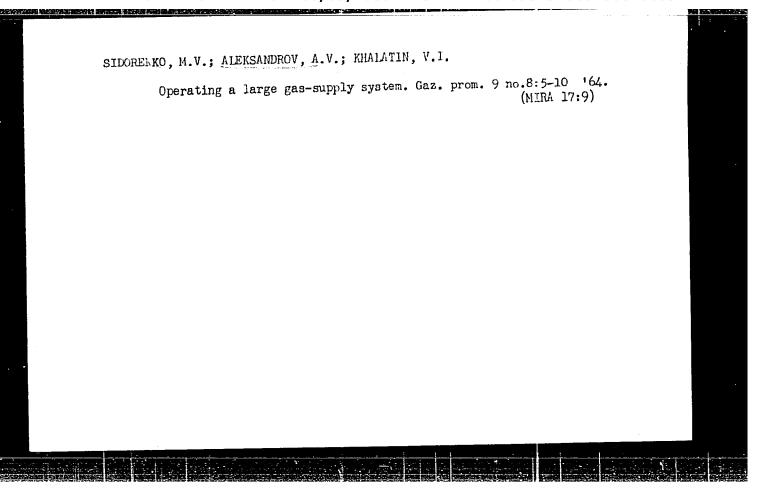
SOROKIN, A.I., red.; ALEKSANDROV, A.V., red.; KLIMUSHIN, A.M., red.; KOPYTOV, V.F., red.; TREBIN, F.A., red.; TURKIN, V.S., red.; CHERNYAK, L.M., red.; SOROKIN, A.I., red.; ZUBAREVA, Yelena Ivanovna, ved. red.; SOLGANIK, Grigoriy Yakovlevich, ved. red.; POLOSINA, A.S., tekhn.red.

[Techniques used in the gas industry of foreign countries] Zarubezhnaia tekhnika gazovoi promyshlennosti; doklady. Moskva, Gostoptekhizdat, 1963. 386 p. (MIRA 17:2)

1. International Gas Congress. 7th, Stockholm. 1961.

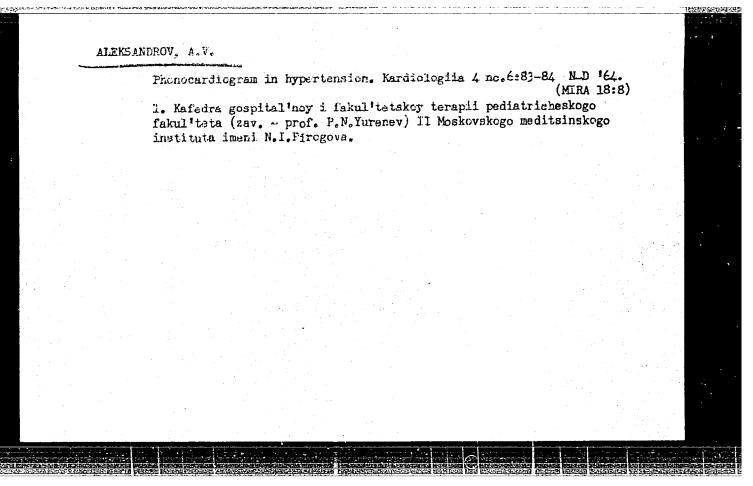
ALLESANDROV, A.V.; DEFINITION V.D.

Brainating the efficiency of the operation of the communerations of gas pipelines. Gaz. prom. 8 no.leun-16 feri



KORTUNOV, A.K.; KORSHUNOV, Ye.S.; KUZNETSOV, P.L.; BARABASH, B.B.;
PROMTOV, A.I.; SHAKIROV, M.Z.; ALI-ZADE, M.A.; KHODZHAYEY,
A.K.; ALEKSANGROV, A.V., red.

[Gas industry in the U.S.A.] Gazovaia promyshlennost' SShA.
Moskva, Nedra, 1964. 339 p. (MIRA 18:9)

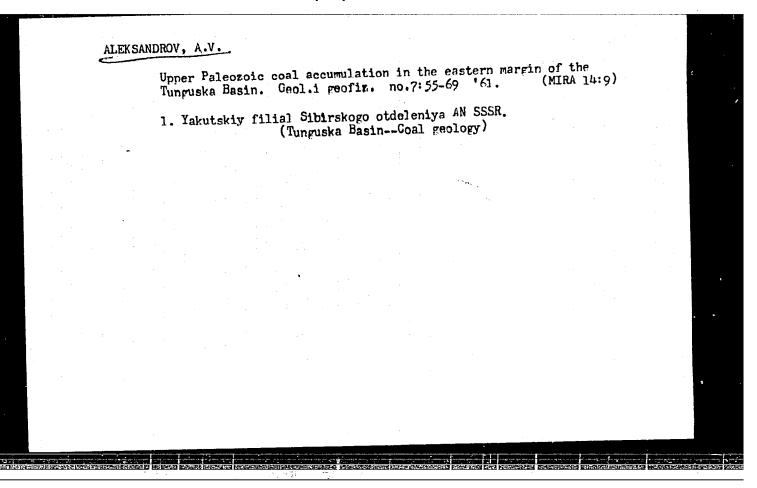


ALEKSANDROV, A.V., dotsent; RYBIN, V.D., inzh.

Determining the forces in suspension supports of spans of the "arch with tis-beam" type. Trudy MITT no.187:63-88 164. (MIRA 1847)

Use of the power method when solving problems of the stability of elastic systems. Stroi.mekh. i rasch.soor. 7 no.5:28-32 165.

(MIRA 18:10)



# ALEKSANDROV, A. V.

Dissertation defended for the degree of Candidate of Geologo-Mineralogical Sciences at the Joint Academic Council on Geologo-Mineralogical, Geophysical, and Geographical Sciences; Siberian Branch

"Main Features of the Upper-Paleozoic Sedimentation and Coal-Accumulation Along the Eastern Limit of the Tungusskiy Basin."

Westnik Akad. Nauk, No. 4, 1963, pp 119-145

ALEKSANDROV, A.V.; FROLOV, V.I.

Conditions of the Upper Paleozoic accumulation of sediments and coal formation in the eastern margin of the Tunguska Basin. Nauch.soob. IAFAN SSSR no.7:59-66 63. (MIRA 16:3)

(Tunguska Basin-Coal geology)

YEROSHCHEV-SHAK, V.A.; ALEKSANDROV, A.V.

Methods for excluding clay minerals from bottom sediments.

Trudy Mor.gidrofiz.inst. AN URSR 28:108-111 '63. (MIRA 17:3)

B 27506-66 EWT(d)/EWT(m)/EWP(f)/T-2 ACC NR. AT6004453 SOURCE CODE: UR/3188/64/000/072/0053/0057 AUTHOR: Aleksandrov, A. V. (Engineer) ORG: LIVT TITIE: Characteristic features of hydrofoil boat propellers SOURCE: Leningrad. Institut vodnogo transporta. Trudy, no. 72, 1964. Sudovyye silovyye ustanovki (Marine power plants), 53-57 TOPIC TAGS: shipbuilding engineering, hydrofoil, ship component ABSTRACT: The screw propeller characteristic defining the relationship between the engine horse-power and the number of revolutions is discussed in relation to the hydrofoil boat performance. Regular formulas used for determination of propeller performance could not be applied to the boats of hydrofoil type. The author's study was based on the experimental data obtained for motorboats "Meteor" and "Raketa". The speed conditions were divided into three stages. The first stage covered the forward motion in water at speeds up to 28 km/hr. The second intermediary stage from 28 to 45 km/hr was characterized by lifting the boat aloft to its gliding position on hydrofoil wings. The third stage, over 45 km/hr, was related to the hydrofoil motion. The boat resist-UDU: 621.431.74.004.12:629.122.69 Card 1/2

L 27506-66 ACC NR: AT6004453 0 ances were determined experimentally by towing appropriate models at different speeds. The resistance curves plotted against various speeds (20 to 80 km/hr) were shown in a graph for motorboats "Meteor" and "Raketa". The dependence of the horse-power (up to 1100 hp) and the boat speed (up to 80 km/hr) upon the propeller revolutions (800 to 2000 rpm) were also graphically illustrated for both boats. The index of resistance variation with speed fluctuated between 2.4 and 3 at the first stage, from 0.94 to 1.71 under intermediate conditions and from 1.64 to 1.74 during the final hydrofoil motion. The relations between the number of revolutions and power required were represented by approximate formulas expressing the engine exterior characteristic as well as the propeller characteristics under normal and hydrofoil conditions. The reserve in horse power for M-50 engines were estimated as 71% in the case of regular propeller operations in water and 40% for the motion under hydrofoil conditions. The possibility of accidental overloads in the course of hydrofoil operations was mentioned and a strict control of engine load conditions recommended. Orig. art. has: 3 graphs. 13 / SUBM DATE: None / ORIG HEF: 000 / OTH REF:

ALEKSANDROV, A.V.; BARMIN, S.F.; MAKSIMOV, Yu.I.; SHAKHIDZHANOV, V.S.

Using electronic computers for the rapid calculation of nonstationary regimes in the operation of gas pipelines. Gaz. prom. 10 no.4:35-39 165. (MIRA 18:5)

ALELSANDROV, A. Ya. Dr. Tech. Sci.

Dissertation: "On Deformation of Adjouning Elastic Bodies." Moscow Order of the Red Banner Construction Engineering Inst., imeni V. V. Kuybysnev. 23 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #17836)

ALEKSANDROV, A.Ya., professor, doktor tekhnicheskikh nauk. Selecting dimensions for ports and partitions between ports in slide valve and cylinder bushings. Trudy NIIZHT no.7: (MLRA 9:10) 76-82 149. (Locomotives -- Cylinders)

ALEKSANDROV, A.Ya., doktor tekhn. nank, prof.

Designing piston rings with low rigidity. Trudy NIIZHT no.8172-88

(MIRA 11:6)

(Piston rings)

One possible way of applying the photoelastic method to the investigation of plane elastic-plastic problems. Trudy NIIEH no.8:
89-94 152.

(Photoelasticity) (Deformations (Mechanics))

ALEKSANDROV, A.Ta., doktor tekhn. namk, prof.; MOHAKHOV, V.F., inzh.

Using the photoelastic method to determine the pressure of piston rings on cylinder walls. Trudy NIIEHT no.8:125-129 '52. (MIHA 11:6)

(Photoelasticity) (Piston rings)

ALESKANDROV ... A. Ya. . doktor tekhn. nauk, prof.; BOGAYENKO, V.P., inzh. Using the photoelastic method to investigate plane elastic contact problems. Trudy NIIZHT no.8:130-135 52. (MIRA 11:6)
(Surfaces, Deformation of)
(Photoelasticity)

ALEKSANDEOV, A.Ta., doktor tekhn. nauk, prof.

One particular solution of axisymmetric dynamic elastic problems.

Trudy NIZHT no.8:139-142 \*52.

(Blasticity)

#### CIA-RDP86-00513R000100820009-1 'APPROVED FOR RELEASE: 06/05/2000

SOV/124-57-4-4569

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 4, p 99 (USSR)

AUTHOR:

Aleksandrov, A. Ya.

TITLE:

On an Approximate Method of Solving Planar Contact Problems in the Theory of Elasticity (Ob odnom priblizhennom metode resheniya ploskikh kontaktnykh zadach teorii uprugosti)

PERIODICAL: Tr. Novosibir. in-ta inzh. zh.-d. transp., 1955, Nr 11, pp 5-28

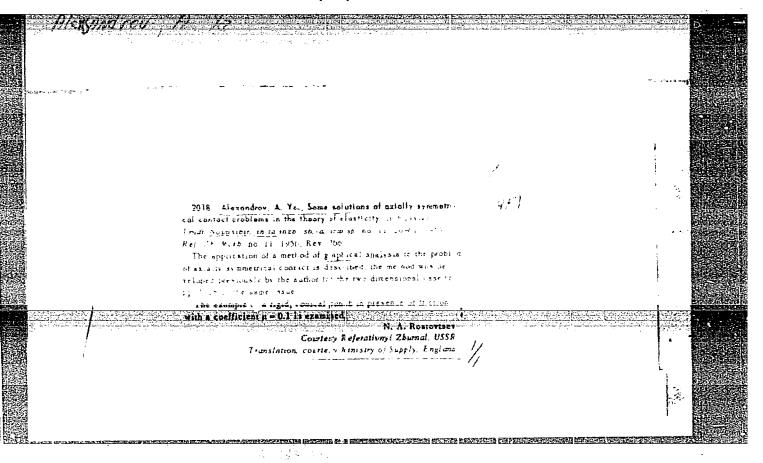
ABSTRACT: A presentation of a general method of solving planar contact problems involving either two elastic bodies or a combination of an elastic body and a rigid stamp under conditions of complete engagement, friction, or complete absence of tangential restraint between the parts of the system. The elastic body, provided it is not bounded by a straight line, is regarded as a portion of a continuous plane. If a straight-line boundary exists, the body is regarded as a part of a half-plane the boundary of which coincides with the rectilinear boundary of the body. In order to achieve a state of stress in the portion of a plane or a half-plane which is identical to that prevailing in the elastic body which fulfills the contact conditions, vertical and horizontal distributed loads are applied along the outline formed by the intersection of

Card 1/2

SOV/124-57-4-4569 On an Approximate Method of Solving Planar Contact Problems (cont.)

the body with the plane or the half-plane. The law governing the distribution of these loads is given in the form of parabolas of nth order. The unknown coefficients contained in the equations for the parabolas are determined with the aid of a requirement stating that the contact conditions must be satisfied in a number of points situated along the line of contact. For the purpose of simplification the loads that must be found are replaced by a system of concentrated forces. Thus, utilizing a half-plane (i. e., the basic case of this study) the stress distribution is determined by summing up the stresses produced by the individual loads, the components of these stresses being determined by Melan's formulas (Melan, E.Z. angew. Math. und Mech., 1932, Vol 12, Nr 6). The displacement formulas were obtained by the author by means of integrating Melan's stress formulas. Plotting of influence lines for the displacements and stresses facilitates computation. By way of an illustration, a solution is given for a problem dealing with the penetration of a rigid wedge into a triangular depression located near the edge of the half-plane. The author overlooked an error in Melan's formula for the horizontal components of normal stresses resulting from the application of a horizontal force (in the case of a horizontal half-plane boundary). Consequently, the formulas derived by the author for the displacements resulting from the action of this force are erroneous. See RZhMekh, 1956, abstract 7680 Card 2/2

M. I. Gorbunov-Posadov



ALEKSANDROV, A.Ta., professor, doktor tekhnicheskikh nauk

Tension and displacement in an elastic space and semispace under the action of an evenly distributed load on a ring.

Trudy NIIZHT no.11:62-88 '55. (MLRA 9:10)

(Elasticity)

ALEKSANDROV, A.Ya., professor, doktor tekhnicheskikh neuk;

MUMARCHOV, B.F., inzhener; KLYACHKO, S.D., student;

PRESNIKOV, V.Ya., student

Investigation of plane contact problems for soils by means of photoelasticity. Trudy NIIZHT no.11:89-101 '55. (MLRA 9:10)

(Photoelasticity) (Soil mechanics)

ALEKSANDROV, A.Ya., prof.; AKHMETZYANOV, M.Kh., insh.; KRASNOV, L.A., insh.

Using the photoelastic method for investigating triple hinged plated disk-shaped arches. Trudy NIIZHT no.14:53-98 '58.

(MIRA 12:1)

1. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta.

(Photoelasticity)

(Arches)

ALEKSANDROV, A. Ya., doktor tekhn.nauk, prof. Determining flexure in certain cases of longitudinal-latitudinal bending of rods. Trudy NIIZHT no.14:143-150 '58.

(MIRA 12:1)

1. Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta.
(Elastic rods and wires)

ALEKSANDROV, A.Ya., prof.; GROMOV, L.K., assistent

Friction action in a railroad track base. Trudy NIIZHT no.14:151153 '58. (MIRA 12:1)

1. Movosibirskiy institut inzhenerov zheleznodorozhnogo transporta.

(Railroads--Track)

ALEKSANDROU, A. JA.

1(3); 14(10)  $\rho$  > Phase I book exploitation Sov/2606

Voprosy rascheta elementov aviatsionnykh konstruktsiy; raschet trekhsloynykh paneley i obolochek. Sbornik statey, No. 1 (Problems in Calculating Aircraft Structural Elements; Calculating of Sandwich Panels and Shells. Collection of Articles, No. 1) Moscow, Oborongiz, 1959. 169 p. Errata slip inserted. 2,600 copies printed.

Ed.: A.Ya. Aleksandrov, Doctor of Technical Sciences, Professor; Ed. of Publishing House: T.A. Valedinskaya; Tech. Ed.: V.P. Rozhin.

PURPOSE: This collection of articles 18 intended for engineers and scientific workers concerned with stress analysis of aircraft structural elements.

COVERAGE: The articles in this collection discuss problems in the structural analysis of sandwich panels with light cores, such as problems of the stability of curved panels, design of cores with consideration of transversal tension (tear-off) and the results of panel-strength tests. In addition, problems in the calculation of torsion and bending of a

#### "APPROVED FOR RELEASE: 06/05/2000 CIA-

CIA-RDP86-00513R000100820009-1

Problems in Calculating Aircraft (Cont.)

SOV/2606

cylindrical shell reinforced by bulkheads are covered and the calculation of unsteady temperatures in an I-beam element is considered.

#### TABLE OF CONTENTS:

- 1. Aleksandrov, A.Ya., and L.E. Bryukker. Strength Testing of Sandwich Panels With Foamed Plastic Cores

  In order to check the methods of analysis worked out, the strength of sandwich panels with light cores of foamed plastics in longitudinal compression was investigated experimentally. Results of the experiments are compared with the calculated data. Flat and cylindrical panels with nonreinforced and reinforced foamed plastics of the FK-type were tested.
- 2. Aleksandrov, A.Ya. Calculation of the Core of Sandwich Panels With Consideration of Transversal Tension (Tearoff)

  This paper is concerned with systematic methods of stress analysis of the light core of sandwich panels

Card 2/7

Problems in Calculating Aircraft (Cont.)

SOV/2606

with consideration of shear and transversal stresses (tear-off) which arise along the surface of the junction between the outer layers and the core. Calculation formulas were obtained for plates operating under longitudinal compression and longitudinal and transverse bending.

- 3. Kurshin, L.M. Large Deflections of a Cylindrical Sandwich Shell
  - A system of nonlinear equations for ultimate buckling of cylindrical sandwich shells is obtained by the variational method. The problem of longitudinal compression of a cylindrical sandwich panel simply supported along its four edges is solved according to the nonlinear theory. The results permit the conclusion that load reduction following loss of stability is smaller for sandwich shells with a light core than for single-layer shells of the same thickness.
- 4. Kurshin, L.M. Stability Under Compression of a Simply Supported Cylindrical Sandwich Panel and of a Cylinder With a Corrugated Core

51

Card 3/7

Problems in Calculating Aircraft (Cont.)

SOV/2606

A formula is obtained for calculating curved sandwich panels under longitudinal compression with consideration of the natural bending stiffness of the outer layers. The domain is established in which the assemption of this stiffness being equal to zero is applicable.

- 7. Galkin, S.I. Torsion of an Open Cylindrical Shell Reinforced by Bulkheads 85

  Torsion of an open cylindrical shell reinforced by bulkheads is considered in this paper. The solution is obtained without introduction of additional hypotheses aside from the general assumptions associated with representing the operation of an open shell as momentless. On the basis of the solution the limits of applicability are shown of the hypothesis of warping which has been widely used in problems of calculating open shells under torsion.
- 8. Galkin, S.I. Torsion and Bending of a Circular Cylindrical Shell, Reinforced by Elastic Bulkheads 102

Card 5/7

Problems in Calculating Aircraft (Cont.)

SOV/2606

wing): 1) the method of direct integration of the heat-conduction equations, and 2) the method of elementary equilibrium. Cases of symmetrical and unsymmetrical heating of such elements through the outer flange surfaces are considered as well as the case of different thicknesses of flanges. Solution of the problem is given under the assumption that physical characteristics of the material and the heat-transfer coefficients do not depend on temperature variation.

AVAILABLE: Library of Congress

Card 7/7

IS/mg 11-24-59

ALEKSANDON, A.YA.

PHASE I BOOK EXPLOITATION

SOV/4441

Voprosy rascheta elementov aviatsionnykh konstruktsiy; raschet trekhsloynykh paneley i obolochek, sbornik statey, no. 2 (Problems in Calculating Aircraft Construction Elements; Calculation of Sandwich Panels and Shells, Collection of Articles, No. 2) Moscow, Oborongiz, 1959. 135 p. Errata slip inserted. 1,900 copies printed.

Eds.: A. Ya. Aleksandrov, Doctor of Technical Sciences, Professor, and L.M. Kurshin, Candidate of Technical Sciences; Managing Ed.: A.S. Zaymovskaya, Engineer; Ed. of Publishing House: P.B. Morozova, Tech. Ed.: V.I. Oreshkina.

PURPOSE: This book is intended for engineers, designers, scientific workers and students.

COVERAGE: The book is a collection of 10 articles dealing with theoretical and experimental investigation of the strength of sandwich constructions with light-weight fillers of the foamed-plastic type and rigid fillers of the corrugated and honeycomb type. The articles discuss the general rigidity of sandwich plates and cylindrical shells during longitudinal compression; simultaneous bending, compression and shear of plates; local rigidity; problems in the determination

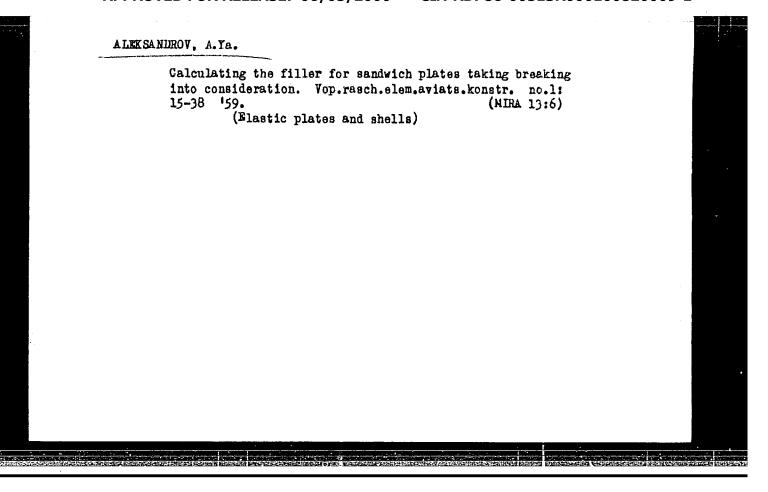
Card 1/3

Problems in Calculating Aircraft Construction (Cont.) SOW/4441  of reduced elastic parameters of honeycomb fillers; and the selection of optimum parameters for plates. No personalities are mentioned. There are no references.  TABLE OF CONTENTS:  Aleksandrov, A.Ya., and E.P. Trofimova. Determination of Reduced Elastic Parameters of Honeycomb Fillers in Sandwich Panels  Aleksandrov, A.Ya., G.S. Savvina, and G.M. Talanova. Local Rigidity of Sandwich Plates With Corrugate-Type Fillers Subjected to Compression  27  Kurshin, L.M. Rigidity of Cylindrical Sandwich Shells Beyond the Elastic Limit  43  Bryukker, L.E. Bending of Sandwich Bars by Concentrated and Distributed Loads  52  Bryukker, L.E. and E.P. Trofimova. Calculation of Sandwich Plates Subjected to Simultaneous Action of Transverse Load, Compression and Shear  81  Bryukker, L.E. Longitudinal and Transverse Bending of a Plate with Rigid Filler	•	
parameters for plates. No personalities are mentioned. There are no references.  TABLE OF CONTENTS:  Aleksandroy, A.Ya., and E.P. Trofimova. Determination of Reduced Elastic Parameters of Honeycomb Fillers in Sandwich Panels  Aleksandrov, A.Ya., G.S. Savvina, and G.M. Talanova. Local Rigidity of Sandwich Plates With Corrugate-Type Fillers Subjected to Compression  27  Kurshin, L.M. Rigidity of Cylindrical Sandwich Shells Beyond the Elastic Limit  Bryukker, L.E. Bending of Sandwich Bars by Concentrated and Distributed Loads  52  Bryukker, L.E. and E.P. Trofimova. Calculation of Sandwich Plates Subjected to Simultaneous Action of Transverse Load, Compression and Shear  81  Bryukker, L.E. Longitudinal and Transverse Bending of a Plate with Rigid Filler	blems in Calculating Aircraft Construction (Cont.) SOV/4441	
Aleksandrov, A.Ya., and E.P. Trofimova. Determination of Reduced Elastic Parameters of Honeycomb Fillers in Sandwich Panels  Aleksandrov, A.Ya., G.S. Savvina, and G.M. Talanova. Local Rigidity of Sandwich Plates With Corrugate-Type Fillers Subjected to Compression  27  Kurshin, L.M. Rigidity of Cylindrical Sandwich Shells Beyond the Elastic Limit  43  Bryukker, L.E. Bending of Sandwich Bars by Concentrated and Distributed Loads  52  Bryukker, L.E. and E.P. Trofimova. Calculation of Sandwich Plates Subjected to Simultaneous Action of Transverse Load, Compression and Shear  81  Bryukker, L.E. Longitudinal and Transverse Bending of a Plate with Rigid Filler	of reduced elastic parameters of honeycomb fillers; and the selection of opparameters for plates. No personalities are mentioned. There are no refer	otimum ences.
meters of Honeycomb Fillers in Sandwich Panels  Aleksandrov, A.Ya., G.S. Savvina, and G.M. Talanova. Local Rigidity of Sandwich Plates With Corrugate-Type Fillers Subjected to Compression  27  Kurshin, L.M. Rigidity of Cylindrical Sandwich Shells Beyond the Elastic Limit  Bryukker, L.E. Bending of Sandwich Bars by Concentrated and Distributed Loads  52  Bryukker, L.E. and E.P. Trofimova. Calculation of Sandwich Plates Subjected to Simultaneous Action of Transverse Load, Compression and Shear  Bryukker, L.E. Longitudinal and Transverse Bending of a Plate with Rigid Filler  94	LE OF CONTENTS:	
Aleksandrov, A.Ya., G.S. Savvina, and G.M. Talanova. Local Rigidity of Sandwich Plates With Corrugate-Type Fillers Subjected to Compression 27  Kurshin, L.M. Rigidity of Cylindrical Sandwich Shells Beyond the Elastic Limit 43  Bryukker, L.E. Bending of Sandwich Bars by Concentrated and Distributed Loads 52  Bryukker, L.E. and E.P. Trofimova. Calculation of Sandwich Plates Subjected to Simultaneous Action of Transverse Load, Compression and Shear 81  Bryukker, L.E. Longitudinal and Transverse Bending of a Plate with Rigid Filler 94		
Limit  Bryukker, L.E. Bending of Sandwich Bars by Concentrated and Distributed Loads 52  Bryukker, L.E. and E.P. Trofimova. Calculation of Sandwich Plates Subjected to Simultaneous Action of Transverse Load, Compression and Shear 81  Bryukker, L.E. Longitudinal and Transverse Bending of a Plate with Rigid Filler 94	ksandrov, A.Ya., G.S. Savvina, and G.M. Talanova. Local Rigidity of dwich Plates With Corrugate-Type Fillers Subjected to Compression	27
Bryukker, L.E. and E.P. Trofimova. Calculation of Sandwich Plates Subjected to Simultaneous Action of Transverse Load, Compression and Shear  Bryukker, L.E. Longitudinal and Transverse Bending of a Plate with Rigid Filler  94		43
to Simultaneous Action of Transverse Load, Compression and Shear  Bryukker, L.E. Longitudinal and Transverse Bending of a Plate with Rigid Filler  94	ukker, L.E. Bending of Sandwich Bars by Concentrated and Distributed Loads	52
Filler 94	ukker, L.E. and E.P. Trofimova. Calculation of Sandwich Plates Subjected Simultaneous Action of Transverse Load, Compression and Shear	81
		94
Card 2/3	na 2/3	

ALEKSANDROV, A.Ya.; BRYUKKER, L.E.

Strength test of sandwich panels with a foamed plastic filler. Vop.rasch.elem.aviats.konstr. no.1:3-13 '59.
(NIRA 13:6)

(Elastic plates and she'ls--Testing)



SOV/179-59-1-17/36

AUTHORS: Aleksandrov, A. Ya. and Krasnov, L. A. (Novosibirsk)

TITLE: Electrical Compensator for Measuring the Path Difference in Investigations by the Photoelastic Method (Elektricheskiy kompensator dlya izmereniya raznosti khoda pri issledovaniyakh metodom fotouprugosti)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Mekhanika i mashinostroyeniye, 1959, Nr 1, pp 122-126 (USSR)

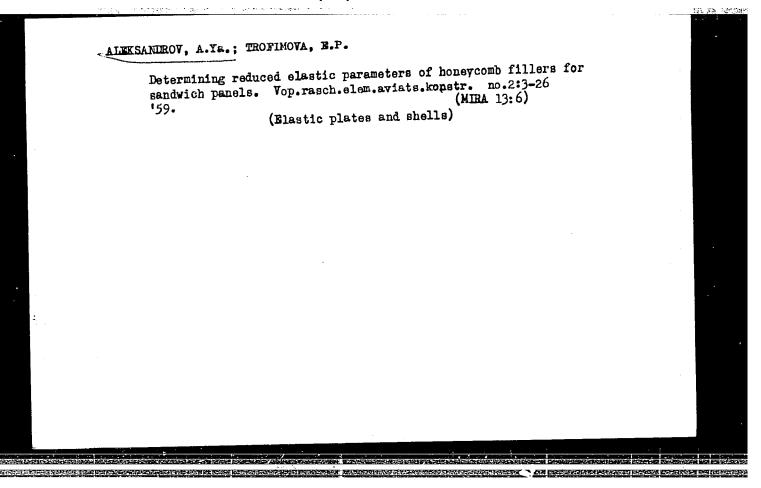
ABSTRACT: The paper is a continuation of previous work (Ref.4). The essential feature of the equipment is a Kerr condenser situated on the axis of the polarimeter in place of the usual compensator. In static experiments, the Kerr voltage is measured potentiometrically and in dynamic experiments it is displayed on a cathode-ray tube. The formulae required for the determination of the principal stress directions and the path difference are derived. There are 9 figures and 5 references, 4 of which are Soviet and 1 German.

SUBMITTED: July 28, 1958.

Card 1/1

# "APPROVED FOR RELEASE: 06/05/2000 CIA-RDP

CIA-RDP86-00513R000100820009-1



KLA	KSANDROV, A.Ya.; SAVVINA, G.S.; TALANOVA, G.M.	
	Local compressive strength of sandwich plates with a corrugated filler. Vop.rasch.elem.aviats.konstr. no.2:27-42 '59. (MIRA 13:6)	
	(Elastic plates and shells)	·
	<b>†</b>	
	•	
	!	
		-
	•	j <sub>e</sub>

ALEKSANDROV, A.Ya.; KURSHIN, L.M. Compression of a reinforced plate. Vop.rasch.elem.aviats.konstr. (MIRA 13:6) no.2:114-124 159. (Elastic plates and shells)

ALEKSAHDROV, A.Ya.; KURSHIN, L.M.; PRUSAKOV, A.P.

Selecting parameters of sandwich plates with a light filler designed for compression. Vop.rasch.elem.aviats.konstr. no.2: 125-130, 1417
(Elastic plates and shells)

ALEKSANDROV, A.Ya.; PHYUKKER, L.E.

Results of longitudinal compression tests of rectangular sandwich plates. Vop.rasch.elem.aviats.konstr. no.2:131-135 159.

(MIRA 13:6)

(Elastic plates and shells—Testing)

\$/179/59/000/06/019/029 E081/E141

Aleksandrov, A.Ya., and Nazarov, N.I. (Nvosibirsk) AUTHORS:

The Stresses in Glued Joints TITLE:

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh

nauk, Mekhanika i mashinostroyeniye, 1959, Nr 6,

pp 121-126 (USSR)

ABSTRACT: It is known that uniform extension of joints in thin laminae with overlap (Fig la) or with a plate (Fig lb) leads to very high stresses near the edges and to lower stresses in the middle parts of the joint (Refs 1-4). Scarf joints (Fig 1B) give the most uniform stress distribution (Ref 5), but their practical applicability is limited. Considerable improvement can be effected with plated joints if the plating has a high berding Stiffness and relatively low extensional stiffness (Figs 12-e). In the present paper, joints of types 1d, i.e. working within the proportional limits in uniform tension, are considered. The glue line stresses for the combination shown in Fig 2 are determined by the mutual horizontal displacements of the glued-laminae and plate Card and by the thickness of the glue layer. Assuming that 1/4 these displacements depend only on the extension of the

\$/179/59/000/06/019/029 \$081/\$141

The Stresses in Glued Joints

glued elements and that the shear stresses are uniformly distributed through the layer, it is found that

$$\frac{\delta_{3}(x)^{\dagger}_{xy3}(x)}{G_{3}} = \frac{d_{3}(x)}{G_{3}} \frac{d_{3}(x)}{d_{3}} - \frac{1}{x} \frac{1}{B_{1}(x)} \left( 1 - \frac{1}{x} xy_{3}(x) \right) dx$$

$$dx + \int \frac{1}{B_{2}(x)} \left( \int xy_{3}(x) dx \right) dx \qquad (1.1)$$

where  $\tau_{xyi}(x)$ ,  $\tau_{yzi}(x)$ ,  $\tau_{xzi}(x)$ ,  $\sigma_{yi}(x)$  are the shear and normal stresses of a section with abscissa x (the index i=1 corresponds with the lamina, 1=2 with the plate, and i=3 with the glue layer);  $G_i$ ,  $B_i$ ,  $\mu_i$  are the shear modulus, elasticity modulus and Poisson's ratio respectively;  $\delta_i(x)$  is the thickness of the element i;  $B_i(x)$  and  $D_i(x)$  are the stiffnesses in extension and bending respectively per unit width, and q is the uniform load per unit width of lamina.

Card 2/4

S/179/59/000/06/019/029 E081/E141

The Stresses in Glued Joints

The shear stress distribution is then determined approximately by Eqs (1.1) and (1.5), and the tearing stresses by Eqs (1.3), (1.4) and (1.6), in which  $V_1$  represents the deflection of the element i. The behaviour of the construction shown in Fig 3 working in shear is described by Eqs (1.7)-(1.9), where t is the total shear load per unit length of the contour of the rectangle abcd (Fig 3b). The equations (1.1), (1.3) and (1.4) are solved by taking the extensional stiffness of the plate in the form (1.10), and Eq (1.1) then becomes (1.11). If the plate has large bending stiffness, and  $\delta_3(x)$  and  $\delta_1(x)$  are constant, the first equation (1.4) and Eq (1.2) lead to Eq (1.12), the solution of which is given by Eqs (1.13)-(1.15). Assuming that the extensional stiffnesses along the joint, plate and laminae are constant, and that the bending stiffness of the plate is very large compared with the stiffness of the laminae (Fig 12), Eq (1.1) with  $\delta_1(x)$  = const and  $\delta_3(x)$  = const, leads to Eq (2.1) of which the solution for the shear stress  $\delta_1(x)$  is given by Eq (2.3) and for

Card 3/4

S/179/59/000/06/019/029 E081/E141

The Stresses in Clued Joints

Card 4/4

the stress  $\sigma_{y3}(x)$  by Eq (2.5). Fig 5 illustrates Eqs (2.3) and (2.5) graphically for E<sub>3</sub> = 2.1 x  $10^{+}$  kg/cm<sup>2</sup> (glue BF-4),  $E_1 = 7.2 \times 10^5 \text{ kg/cm}^2$  (dural),  $G_3 = 0.72 \times 10^4 \text{ kg/cm}^2$ ,  $\delta_1 = 0.4 \text{ cm}$ ,  $\delta_2 = 5 \text{ cm}$ ,  $B_2 = 3B_1 = 2.88 \times 10^5 \text{ kg/cm}, \delta_3 = 0.004 \text{ cm (curve 1)},$ 0.02 cm (curve 2), 0.05 cm (curve 3), 0.1 cm (curve 4), and  $\gamma_{\text{max}}$  is given by the first equation on page 125. Results of calculations for a glue and plate of constant extensional stiffness are shown in Fig 6 for  $\ell=15$  cm,  $\delta_3=0.02$  cm,  $B_1=7.2 \times 10^5$  kg/cm<sup>2</sup>,  $B_3=2.1 \times 10^5$  $kg/cm^2$ ,  $\delta_1 = 0.3$  cm. In the case of a plate with large bending stiffness (Fig 1d), the equations (3.1)-(3.3) apply. The profile of the plate corresponding to the condition  $\gamma_{xy3}(x) = \text{const}$  is given by Eq (3.4). If the thickness of the middle part of the plate is constant (Fig 7), the shear stresses in the plate are given by Eqs (3.8) and (3.11). There are 7 figures and 5 references, of which 4 are English and 1 is German.

May 22, 1959 SUBMITTED:

Denging of	C STRUC CHILDING	of braces amus a	bor. 25:37-44 '59. (MIRA 13:2)	
	(Elastic pla	tes and shells)		
ř.	•	en e	me mantes	
	ŧ			
	•			

- 16 (1) AUTHOR:

Aleksandrov, A. Ya.

SOV/20-128-1-13/58

TITLE:

Some Relations Between the Solutions of the Two-dimensional and the Axially Symmetrical Problem of the Theory of Elasticity for

an Infinite Plate

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 1, pp 57 - 60

(USSR)

ABSTRACT:

The above relations have already been investigated in several previous articles, however, no solution of the axially symmetrical problem has been found as yet on the basis of the known solution of the corresponding two-dimensional problem. This article deals with the elaboration of such a method for an infinite plate. The latter is assumed to be, with respect to the YOZ-plane, in a two-dimensional, nonspherical state brought about by the action of the vertical and horizontal loads Q and P. By rotating the loads acting upon the plate by the angle  $\pi$  with respect to the OZ-axis, a certain transformed axially symmetrical state is attained. The following may then be shown: The loads Q and P, which are distributed on two lines parallel to the OY-axis in two-dimensional state, correspond to the load

Card 1/5

Some Relations Between the Solutions of the Two-dimensional and the Axially Symmetrical Problem of the Theory of Elasticity for an Infinite Plate

$$q(g) = \frac{2Q}{\sqrt{g^2 - a^2}}, p(g) = \frac{2aP}{g\sqrt{g^2 - a^2}} (g \ge a); q(g) = p(g) = 0 (g \le a)$$

in a transformed, axially symmetrical state. In the case Q = Q(a), P = P(a) at  $a < a < \infty$ , and Q = P = 0 at 0 < a < a, how-

ever, it holds: 
$$q(s) = \int_{a_0}^{s} \frac{2q(a)}{\sqrt{s^2 - a^2}} da$$
,  $p(s) = \int_{a_0}^{s} \frac{2aP(a)}{s\sqrt{s^2 - a^2}} da$ ,

 $(g \ge a_0)$ ; q(g) = p(g) = 0  $(g < a_0)$ . The tensions of the transformed, axially symmetrical state are determined by integration in the following manner:

$$\sigma_{ro}^* = \int_0^{\pi} (\sigma_{xp} \cos^2\theta + \sigma_{yp} \sin^2\theta) d\theta$$
,  $\sigma_{zo}^* = \int_0^{\pi} \sigma_{zp} d\theta$ 

Card 2/5

Some Relations Between the Solutions of the Two-dimen- SOV/20-128-1-13/58 sional and the Axially Symmetrical Problem of the Theory of Elasticity for an Infinite Plate

$$\sigma_{\theta o}^* = \int_0^{\pi} (\sigma_{yp} \cos^2 \theta + \sigma_{xp} \sin^2 \theta) d\theta$$
,  $\tau_{rxo}^* = \int_0^{\pi} \tau_{xxp} \cos \theta d\theta$ ,

where  $\sigma_{xp}(x,z)$ ,  $\sigma_{xp}(x,z)$ ,... denote the tensions of the two-dimensional state, and it holds:  $x = \cos \theta$ . The author then investigated the following case: The two-dimensional plate is assumed to be in axially symmetrical state, effected by the action of the radial and vertical loads Q and P. By shifting the loads acting upon the plate along the OY-axis from  $y = -\infty$  to  $y = \infty$  a transformed two-dimensional state is attained. Formulas for the loads in transformed two-dimensional state are then written down. The tensions of this state are determined by integration as follows:

$$\sigma_{xp}^{\sharp} = \int_{-\infty}^{\infty} (\sigma_{ro} \cos^2 \theta + \sin_{\theta o} \sin^2 \theta) dy, \quad \sigma_{xp}^{\sharp} = \int_{-\infty}^{\infty} \sigma_{zo} dy;$$

Card 3/5

Some Relations Between the Solutions of the Two-dimen- SOV/20-128-1-13/58 sional and the Axially Symmetrical Problem of the Theory of Elasticity for an Infinite Plate

$$\sigma_{yp}^{*} = \int_{-\infty}^{\infty} (\sigma_{ro} \sin^{2}\theta + \sigma_{\thetao} \cos^{2}\theta) dy; \quad \tau_{xzp}^{*} = \int_{-\infty}^{\infty} \tau_{rzo} \cos\theta dy,$$

where  $\sigma_{ro}(r,z)$ ,  $\sigma_{\theta o}(r,z)$ ,... denote the tensions of the axially symmetrical state  $r^2=x^2+y^2$ ,  $\cos\theta=x/r$ ,  $\sin\theta=y/r$ . If the loads Q and P act upon the same plane in axially symmetrical state, the relations between the latter and the transformed, axially symmetrical state may be deduced from the equations written at the beginning. In the general case it is possible to ascertain the tensions of the axially symmetrical state by one of the two-dimensional states with transformed load provided the loads are given. In this case, the action of vertical and horizontal loads is separately investigated. In conclusion, the author determined expressions for loads of the two-dimensional state which yield the given axially symmetrical expressions after one rotation. There are 1 figure, 2 tables, and 4 references, 1 of which is Soviet.

Card 4/5

Some Relations Between the Solutions of the Two-dimen- SOV/20-128-1-13/58 sional and the Axially Symmetrical Problem of the Theory of Elasticity for an Infinite Plate

ASSOCIATION: Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta

(Novosibirsk Institute for Railroad Engineers)

PRESENTED: February 28, 1959, by Yu. N. Rabotnov, Academician

SUBMITTED: February 10, 1959

Card 5/5

#### 

24,4100

67247

<del>16(1)</del>

SOV/20-129-4-11/68

AUTHOR:

Aleksandrov, A. Ya.

TITLE:

Some Relations Between the Solutions of the Two-dimensional and the Axially Symmetric Problem of the Elasticity Theory and the Solution of the Axially Symmetric Problems With the Aid

of Analytical Functions

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 4, pp 754-757

(USSR)

ABSTRAC ::

The author here generalizes a method (by means of which he set up several relations between the solutions of the two-dimensional and axially symmetric problems for a plane elastic plate in one of his earlier papers (Ref 1)) to bodies which are bounded by surfaces of arbitrary contours. The function  $r_0(z)$  must,

however, be unique for that half of the body which is located on one side of the YOZ plane. By means of the relations thus determined, the solution of the first and of the second axially symmetric fundamental problem is reduced to the determination of functions of a complex variable, which are axially

Card 1/4

symmetric in the investigated range, from two integral equations

67**249** SOV/20-129-4-11/68

Some Relations Between the Solutions of the Two-dimensional and the Axially Symmetric Problem of the Elasticity Theory and the Solution of the Axially Symmetric Problems With the Aid of Analytical Functions

1) First, a given cylinder is assumed to be in a plane deformed state, which is symmetric with respect to the YOZ plane. From this cylinder a rotational body is then cut out. The equations for the state of stress of this body are explicitly written down. 2) An elastic volume with an axially symmetric cavity is assumed to be located in an axially symmetric state of stress. Also in this case the cavity is cylindrical. By superposition of the components of the state of stress and of the deformed state due to their being shifted along the OY-axis from  $y = -\infty$  to  $y = +\infty$  a certain plane state of the volume with a cylindrical cavity is obtained. Expressions for the stresses and the deformations of the axially symmetric state are written down. The resulting equations are reduced to Abel's equations, and their solution is explicitly written down.

Card 2/4

#### 67249

SOV/20-129-4-11/68

Some Relations Between the Solutions of the Two-dimensional and the Axially Symmetric Problem of the Elasticity Theory and the Solution of the Axially Symmetric Problems With the Aid of Analytical Functions

3) The stresses acting upon the body may be transformed under the conditions described. The transformation laws given in the above-mentioned earlier paper continue to hold also for volume forces. The formulas for the dilatation due to temperature in transition from the plane to the axially symmetric and also from the axially symmetric to the plane state are written down. Similar methods may be applied also in the other cases rendering superposition possible (e.g. in dynamical problems). By using the relations thus found, the solution of axially symmetric problems is then reduced to the determination of two analytical functions of a complex variable from two integral equations. As an example, the equations for the second main problem of elasticity for a massive body and for a body with a cavity are then written down. It is mentioned that the author thanks L. M. Krushin for useful advice concerning the transformation of the equations mentioned in this paper. There are 1 figure and 1 Soviet reference.

Card 3/4

67249 SOV/20-129-4-11/68

Some Relations Between the Solutions of the Two-dimensional and the Axially Symmetric Problem of the Elasticity Theory and the Solution of the Axially Symmetric Problems With the Aid of Analytical Functions

ASSOCIATION: Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta

(Novosibirsk Institute of Railroad Engineers)

PRESENTED: July 16, 1959, by Yu. N. Rabotnov, Academician

SUBMITTED: June 10, 1959

Card 4/4

PHASE I BOOK EXPLOITATION

SOV/4733

- Aleksandrov, Avraam Yakovlevich, Leonid Eduardovich Bryukker, Lev Moiseyevich Kurshin, and Aleksandr Pavlovich Prusakov
- Raschet trekhsloynykh paneley (Calculations for Sandwich Panels). Moscow, Oborongiz, 1960. 270 p. Errata slip inserted. 1,600 copies printed.
- General Eds.: A. Ya. Aleksandrov, Doctor of Technical Sciences, Professor, and L.M. Kurshin, Candidate of Technical Sciences; Ed.: A.A. Goryainov, Candidate of Technical Sciences; Managing Ed.: A.S. Zaymovskaya, Engineer; Ed. of Publishing House: P.B. Morozova; Tech. Ed.: N.A. Pukhlikova.
- PURPOSE: This book is intended for designers, scientific personnel, and students in related fields.
- COVERAGE: The book contains formulas and diagrams for strength calculation of flat and curved sandwich panels with various cores (homogeneous foam-plastic type, ribbed, etc.) under various support conditions, and subjected to various combinations of loads. Data on selecting optimum parameters of panels and on strength testing of panels are included. The introduction and Chapters 11, 12, 13, 15, 27, and 28 were written by A. Ya. Aleksandrov; Chs. 6, 16, 17, 18, 19, 21, 23, 24, 25, and 26 by L.E. Bryukker; Chs. 2, 3, 5, 8, 9, 10, 14, 20, part of Ch. 4 Card 1/6

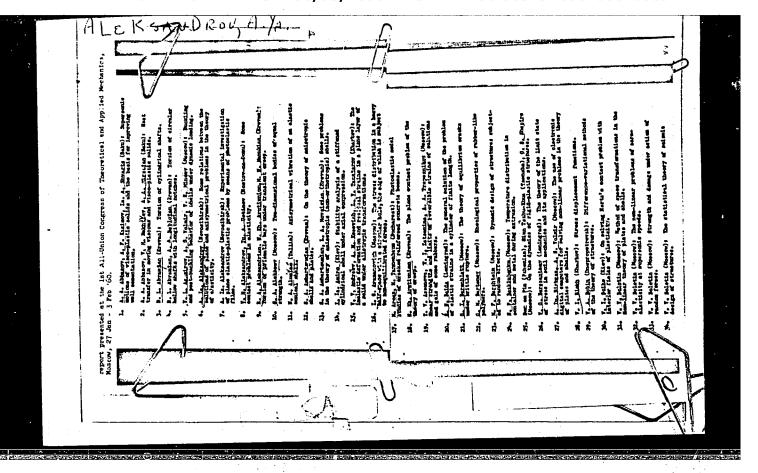
# Calculations for Sandwich Panels

## BOV/4733

and part of Ch. 1 (Sections 1.5, 1.7, 1.8.2, 1.10, 1.11, and 1.12) by L.M. Kurshin; and Chs. 7, 22, part of Ch. 4, and part of Ch. 1 (Sects. 1.1, 1.2, 1.3, 1.4, 1.6, 1.8.1, 1.9, 1.13) by A.P. Prusakov. Materials supplied by N.I. Nazarov are used in Sect. 16.2 of Ch. 16. The authors thank E.P. Trofimova for her assistance. There are 136 references: 32 Soviet, 101 English, and 3 German.

#### TABLE OF CONTENTS.

TABLE OF CONTENTS:	
Conventional Symbols	3
Introduction	7
PART I. STABILITY OF SANDWICH PANELS	
Ch. 1. Stability of Sandwich Plates With a Light [Low-Rigidy) Isotropic Core	13
Ch. 2. Stability of Sandwich Plates With a Light Orthotropic Core	30
Ch. 3. Stability of Sandwich Plates With Rigid Isotropic Core	<b>3</b> 6
Ch. 4. Stability of Sandwich Plates With Rigid Orthotropic Core and Orthotropic External Layers	յլ լ Ա
Car <del>d 2/</del> 6	- • •



HC	EK	AA	EK.	4		F1.	YA.										
		dard 6/12	<ol> <li><u>Mobeland</u>, G. (German Prescritic Republic). Invertigation of the briding of a Reptaceplar Flate of Liberally Varying Thiomess by the Optical Polarisation Method</li> </ol>	26. France, T.M. Street Analysis of Shells With the Nothed of Pioto- alacticity	55. App. 13.5., and Ed. Saks. Optical Personne is the Redioecopy of Sails	<ul> <li>Styli_LLG. Arcasetton of the Process of Data Interpretation nor the Optical Method of Stress Analysis</li> <li>THEOREMS OF PLANT AND SERVICE</li> </ul>	<ol> <li>Military A. J. J. and J. A. M. Manney. Electric Companions for the Maring the Engagetic Mitterson in Envering Companions for an the Photos Lectrity Nethod</li> </ol>	Optical Polarisation Method (Cont.)	The property of the end of high of the reports.	problems and now methods of investigation and describe apparatus and measures and in the optical new instant. Solutions of specific two-dimensional and three dimensional, in various branches of heavy and presistion meables design, duples constraints, between the problems of the problem	continue: "the collection contains report presents and 10 miles in 1998, in polarisation methods is stress malysis build Pabruary 13 miles; 1998, in polarisation methods is stress malysis building representatives of the Propis's Emphalic and attended by 3th designates including representatives of the Polish Propis's Emphalic; the Great Description Emphalic of Caschellorable, The reports discuss general theoretical and the Emphalic of Caschellorable, The reports discuss general theoretical	WHINE: This collection of 50 articles is intended for sofinities and enquering concerned with experimental atress analysis of machine parts and structural components.	Rep. Md.: S.F. Shithobalor; Ed.: Ye.V. Shehamilevi Yet. Ed.: S.F. sewinger, Reiterfal Board; S.G. Ottmas, L.M. Echanov, Y.M. Evenov, Y.D. Makentow, H.I., Frigorowskiy, V.M. Freskin, N.S. Rozurov, and Ye.L. Edel-abityre.	biparizateiamno-optichasky metod issisdoraniya napryathnisy rest kantyrist 13-21 ferrilya 1958 goda (optical balarization bebod for Stress Analysis; francactions of the Godernoos of February 15-21, 1958). [Indicard] Idd-ro Laningradalogo units, 1950. AM p. Errata slip inserted. 2,100 copies printed.	Lealingrad, Salversitet		
		Ĝ'	8 ;	ß	8	*	Ħ	1					<u> </u>		*****	•	

ALEKSANDROV, A.Ya., prof., doktor tekhn.nauk, red.; KURSHIN, L.M., kand.tekhn.nauk, red.; MOROZOVA, P.B., izdat.red.; ORESHKINA, V.I., tekhn.red.

[Designing elements of aircraft structures; analysis of sandwich panels and shells] Voprosy rascheta elementov aviatsionnykh konstruktsii; raschet trekhsloinykh panelei i obolochek. Sbornik statei. Pod red. A.IA. Aleksandrova i L.M.Kurshina. Moskva. Gos.izd-vo obor.promyshl. No.2. 1959. 134 p.

(MIRA 14:2)

(Elastic plates and shells)
(Airplanes-Design and construction)

S/260/62/000/004/004/005 1006/1206

**AUTHORS:** 

Aleksandrov, A. Ya and Bryukker, L. E.

TITLE:

Strength testing of triple-layer panels with penoplast fillers

PERIODICAL:

Referativnyy zhurnal, vozdushnyy transport. Svodnyy tom. no. 4, 1962, 9, abstract

no. 4 A46, In collection (Vopr elementov aviats. konstruktsiy), M., Oborongir, no. 1,

1959, 3-13

TEXT: none given

[Abstracter's note: Complete translation of title only.]

Card 1/1

24.4200

S/124/62/000/004/027/030 D251/D301

AUTHOR:

Aleksandrov, A. Ya.

TITLE:

Calculation of the filler of a three-layer plate, with

consideration of a cavity

PERIODICAL:

Referativnyy zhurnal, Mekhanika, no. 4, 1962, 16, abstract 4V111 (V sb. Vopr. rascheta elementov aviats.

konstruktsii, no. 1, M., Oborongiz, 1959, 14-38)

TEXT: A method is given for calculating the strength of a light filler of three-layer plates with consideration of the stresses of displacement and a cavity arising on the surface of junction of the outer layers with the filler. Computation formulas are obtained for plates acting on longitudinal compression and longitudino-transverse bending. An infinitely wide three-layer plate with a filler of constant modulus of elasticity, supported at both sides is considered as an example. For different parameters of the plate which has initial skew-symmetric bending the critical compression stress of the outer layers, the maximum values of the displacement

Card 1/2

Calculation of the ...

S/124/62/000/004/027/030 D251/D301

and cavity stress on the surface of junction relative to the initial bending are presented and also the value of the compression stresses in the filler, arising from the general compression of the whole plate. Formulas are derived for determination of stresses arising from initial undulation of the outer layers of the plate. An estimate is given of the applicability of these formulas for wave-lengths, for which the described stresses will be at a maximum. The case is considered of when the three-layer plate simultaneously possesses intial skew-symmetric bending and initial undulation of the outer layers. The results of the calculations are presented in tables. Abstracter's note: Complete translation.

Card 2/2

ALEKSANDROV, A.Ya. (Novosibirsk)

Investigation of certain mixed boundary value problems with the aid of the membrane analogy. FMTF:no.4:95-96 N-D '60. (MIRA 14:7)

(Boundary value problems)
(Hydrodynamics—Electromechanical analogies)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820009-1"

S/207/61/000/006/012/025 A001/A101

AUTHORS: Aleksandrov, A.Ya., Akhmetzyanov, M.Kh. (Novosibirsk)

TITLE: Investigation of plane elastic-plastic problems by means of photo-

elastic coatings

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 6, 1961,

99 - 110

TEXT: This article deals with investigations of elastic-plastic problems by the polarization-optical method using photoelastic coatings applied to metallic bodies being investigated. The authors propose and experimentally test some general methods for separating strains and determining stresses in both elastic and plastic regions of the bodies being deformed. Stresses in the elastic region are found by means of the optical difference of polarized light beams passing normally through the coating and by using the Hooke law. To separate main strains, various methods can be employed: the method of transverse strain (in case of investigating bodies being in the plane strained state), methods of graphical integration of differential equilibrium equations, and the method based on using equations for joint strains. The elastic region of the body being investigated can Card 1/3

S/207/61/000/006/012/025 A001/A101

Investigation of plane elastic-plastic problems ...

Card 2/3

be distinguished from its plastic region by using the phenomenon of change of Poisson coefficient, associated with appearance of plastic deformations. In plastic regions stresses can not be inferred from the knowledge of patterns of strained state without one of the assumptions following from various theories of plasticity, such as deformation theory and theory of flow. The authors then list the basic assumptions made and describe the methods of determining stresses when each of them is employed; they are as follows: 1) directions of main normal stresses and strains coincide; 2) intensity of stress is a known function of strain intensity, independent of the form of the strained state; 3) volume strain is proportional to mean normal stress, and 4) main tangential stresses are proportional to main shears. Techniques of experiments are described. Epoxy resin 31 -6 (ED-6) was applied as a material for photoelastic coatings, and its properties and methods of application are enumerated. Two devices of one-sided arrangement were used for polarization analysis of strains in the photoelastic coatings. Their principle of operation is described. As an example the authors present graphically the results of investigating a strip with a circular aperture subjected to tension, employing two of the mentioned assumptions. It turned out that the assumption of coincidence of directions of main stresses and strains is unfit for this case, whereas the assumption on a functional relation between intensities

S/207/61/000/006/012/025 A001/A101

Investigation of plane elastic-plastic problems ...

of strains and stresses yields satisfactory results. The conclusion has been drawn that with development of plastic deformations, directions of main stresses turn relative to directions of main strains. There are 7 figures and 23 references, 13 of which are Soviet-bloc.

SUEMITTED: August 15, 1961

Card 3/3

ALEKSANDROV, A.Ya. (Novosibirsk); VOL'PERT, V.S. (Novosibirsk) Applying a method of solving axisymmetrical problems in the theory of elasticity to the problem of a sphere and a space with a spherical hollow. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.6:106-109 N-D '61. (MIRA 14:1

(Elastic solids)

(MIRA 14:11)

CIA-RDP86-00513R000100820009-1" **APPROVED FOR RELEASE: 06/05/2000** 

ALEKSHIDROV, A.Ya. (Novemibirsk)

Solution of axisymmetrical problems in the theory of elasticity by means of relations between the axisymmetrical and plane states. Prikl. mat. i mekh. 25 no.5:912-920 S-0 \*61.

(MIRA 14:10)

(Elasticity)

ALEKSANDROV, A.Ya.

Solving axisymmetric problems in the theory of elasticity by means of analytic functions. Dokl. AN SSSR 139 no.2:337-340 J1 '61.

(MIRA 14:7)

1. Novosibirskiy institut inzhenerov zheleznodorozhnogo trnasporta. Predstavleno akademikom Yu.N. Rabotnovym. (Elasticity) (Functions, Analytic) (Boundary value problems)

#### PHASE I BOOK EXPLOITATION

SOV/6061

Aleksandrov, Avraam Yakovlevich, Mikhail Yakovlevich Borodin, and Viktor Vasil'yevich Pavlov

Konstruktsii s zapolnitelyami iz penoplastov (Constructions With Foamed-Plastic Fillers). Moscow, Oborongiz, 1962. 186 p. Errata slip inserted. 4500 copies printed.

Ed. (Title page): A. Ya. Aleksandrov, Doctor of Technical Sciences, Professor; Ed.: L. M. Kurshin, Candidate of Technical Sciences; Ed. of Publishing House: N. A. Gortsuyeva; Tech. Ed.: A. Ya. Novik; Managing Ed.: S. D. Krasil'nikov, Engineer.

PURPOSE: This book is intended for design engineers, designers, process engineers, and students of schools of higher technical education.

COVERAGE: The book deals with the characteristics of working with units constructed with foamed-plastic and similar light fillers. Methods of designing,

Card 1/4 2

1

#### Constructions With Foamed-Plastic Fillers

SOV/6061

manufacturing, calculating, and testing the strength of such structures are discussed. General information on foamed plastics and their physicochemical properties is also given. Ch. I was written by M. Ya. Borodin; Ch. II, by V. V. Pavlov (except parts A and B of section 4, article 2, and article 4); and the Introduction, Chs. III and IV, and the remainder of Ch. II, by A. Ya. Aleksandrov. No personalities are mentioned. There are 34 references: 15 Soviet, 14 English, 4 German and 1 Italian.

## TABLE OF CONTENTS [Abridged]:

Introduction	•
Ch. I. Foamed Plastics	11
1. General information	11
. 1. Structure of foamed plastics	11
2. Production methods and principles for foamed plastic	cs 12
3. Dispersion and volume weight of foamed plastics	28
0	

Card 2/4 2

8/200/62/000/002/001/003

AUTHOR:

Aleksandrov, A.Ya.

TITLE:

Some relations between the stress functions of plane and axially symmetric problems of the theory of elasticity and the solution of the axially symmetric prob-

lem for an infinite, hollow, heavy cone

PERIODICAL:

Akademiya nauk SSSR. Sibirskoye otdeleniye. Izvestiya, no. 2, 1962, 15 - 24

The author establishes some relations between the stress functions of an axially symmetric state of an infinitely long solid or hollow cone, and stress functions of the plane state of the corresponding prisms. It is found that with those relations identical boundary conditions may be fulfilled on the similar side surfaces. The solution for the axially symmetric case, analogous to the known general solution of the plane case, incorportates a series of known results, and leads to some new solutions for the cone. Polar coordinates, plane and spherical, are used in derivations and the author shows that the method can be used when other coordinate sys-Card 1/2\_\_\_\_

\$/200/62/000/002/001/003 D237/D301

Some relations between the stress ...

tems, e.g. cylindrical, are used. The relations for the known general solution of the plane problem are tabulated, and the results obtained are used to solve the case of an infinitely long heavy cone, whose side surfaces are under load. There are 2 figures, 1 table and 7 references: 5 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: A. Morgan ZAMP, Bd. 5, no. 4, 1954; A. Morgan, ZAMP, Bd. 7, no. 2, 1956.

ASSOCIATION: Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta (Novosibirsk Railway Engineering Institute)

July 15, 1961 SUBMITTED:

Card 2/2

ALEKSANDROV, A.Ya. (Novosibirsk)

Using analytic functions in solving the three-dimensional axisymmetric problem in the presence of volumetric forces or thermal stresses. Izv.AN SSSR.Otd.tekh.nauk.Mekh. i mashinostr. (MIRA 15:8) no.4:130-133 Jl-Ag 162. (Elasticity)

APPROVED FOR RELEASE: 06/05/2000 CIA-RDP86-00513R000100820009-1"

100

S/040/62/026/001/015/023 D237/D304

**AUTHORS**:

Aleksandrov, A. Ya. and Solov'yev, Yu. I. (Novosibirsk)

TITLE:

A method of solving solid, axially symmetrical problems of the theory of elasticity by complex variable functions

and a solution of these problems for a sphere

PERIODICAL:

Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk. Prikladnaya matematika i mekhanika, v. 26, no. 1, 1962, 138-145

TEXT: In the case of axially symmetrical deformation of the body of revolution, components of elastic deformation w, u are given by Eq.(1.1)

 $2Gw = 4(1 - V)B_z - \frac{\partial}{\partial z} (zB_z + rB_r + B_o)$  where V = Poisson's coefficient,  $2Gu = 4(1 - V)B_r - \frac{\partial}{\partial r} (zB_z + rB_r + B_o)$ 

G = shear modulus, and Bz, Br, Bo = functions of z, r, satisfying Eq.

 $\Delta B_{z} = 0, \qquad \Delta (B_{r}e^{i\theta}) = 0,$   $/2 \qquad (\Delta = \frac{\partial^{2}}{\partial z^{2}} + \frac{\partial^{2}}{\partial r^{2}} + \frac{1}{r} \frac{\partial}{\partial r}$ (1.2)

S/040/62/026/001/015/023 D237/D304

A method of solving solid ...

z, v,  $\theta$  are cylindrical coordinates and z = the axis of rotation. Functions of the complex variable are then introduced, namely  $\phi$  n(g), (n = 1, 2, 3) in the zr-plane. If they are holomorphic within the region in question, then equations are obtained which can be integrated for the given displacements W and u on the boundary. The expressions for stresses are similarly obtained. The above arguments can also be applied to the elastic space with an axially symmetrical cavity with only slight changes in definitions. The problems of the elastic sphere and of the elastic space with a spherical cavity are then solved and the solutions illustrated by three examples. There are 3 figures and 4 Soviet-bloc references.

July 5, 1961 SUBMITTED:

Card 2/2

\$/763/61/000/000/002/013

AUTHOR: Aleksandrov, A. Ya.

TITLE: On the solution of axially-symmetrical problems of the theory of elasticity by the methods of the theory of the function of a complex variable.

SOURCE: Nekotoryye problemy matematiki i mekhaniki. Novosibirsk, Izd-yo

Sib. otd. AN SSSR, 1961, 42-46.

TEXT: This paper is devoted to the construction of methods for the solution of axially-symmetrical problems of the theory of elasticity with the aid of analytical functions. Relationships are established between planar and axially-symmetrical states. These relationships and well-known concepts of the components of planar states in terms of analytical functions of a complex variable are employed to find representations of the components of the axially-symmetrical states in terms of analytical functions. As a result, the solution of the axially-symmetrical problems are reduced to the determination of the contour values of two analytical functions from two integral equations. Reference is made to methods that establish a connection between planar and axially-symmetrical stress distributions in papers by K. Weber (Z. f. Angew. Math. & Mechanik, v. 5, 1925; v. 20, 1940) and by the Soviet Academicians V. I. Smirnov, S. L. Sobolev, et al. (AN SSSR, Trudy seysmol. in-ta,

Card 1/3

On the solution of axially-symmetrical problems .... 5/763/61/000/000/002/013

no. 20, 1933). A cylinder is assumed to have a planar deformed state symmetrical relative to a given plane. The cross-sectional contour of the cylinder is assumed to be such that the function r(z) is single-valued for the one-half of the contour that lies on the one side of the oy axis. A body of revolution is then cut out of the cylinder through a rotation of the cross-sectional contour of the cylinder relative to the oz axis. The stress and strain distributions are then superimposed by means of their rotations through an angle we relative to the axis oz, and expressions are found for the components of the axially-symmetrical distribution. Integration is then performed with respect to x instead of 0, and 2 analytical functions of a complex variable are introduced which are represented by Cauchy integrals, whereupon the values of the components of the axially-symmetrical distribution along the contour of the body are expressed by means of the contour values of two integrable analytical functions. A similar reasoning is performed for an elastic space with an axially-symmetrical cavity regarded to be in a axially-symmetrical stressed state. Again, the values of the components of the stressed state on the contour of the body are obtained in terms of the contour values of two analytical functions. If the principal stress vector applied to the contour is zero, the expressions coincide with those found previously. If the representations of the contour values of the components of the axially-symmetrical state are introduced into the boundary conditions of a problem, a system comprising 2 integral equations for the determination of the

Card 2/3

